ECONOMIC ANALYSIS

COOPERATIVE GYPSY MOTH PROJECT
FOR
CENTRAL INDIANA
2007

The benefit/cost ratio for this project is estimated to be 10:1.

Assumptions

Economic analysis of the Slow-The-Spread (STS) strategy has been done by Leuschner 1991 and Leuschner et al. 1996. In the 1991 analysis, impacts were assumed on the first year of infestation only. In the 1996 analysis, impacts were assumed during every year of the infestation. Jeff Mayo converted the output of the Leuschner analysis so benefits are stated in "dollars per mile of Transition Line". Thus, calculations of benefits can be made for specific STS projects. For each mile that the rate of spread is reduced, the annual value of benefits that accrue are $3,775 (1991 analysis) or $29,315 (1996 analysis) per mile along the Transition Line (communication with Donna Leonard - STS Program Coordinator). The Transition Line is estimated to be the 10-moth line calculated by the STS Program. For the STS project in Northern Indiana, assumptions are that the rate of spread will be reduced by 50% (from 12.5 miles/year to 6.25 miles/year) (Sharov et al. 2002, p. 34), and impacts will be for the first year of infestation only (a conservative estimate). The 50% reduction in the rate of spread is a conservative estimate based on Indiana's average rate of spread of -0.12 miles per year for the last 4 years (Table 1). Therefore, the 50% reduction is a reasonable estimate to use for the analysis in the STS project in Northern Indiana. For this project in central Indiana, the proposed treatment site is 35 miles west of the Ohio/Indiana state line, 65 miles west of the STS action zone in Ohio and 120 miles west of the transition line in Ohio. Using the benefits from Leuschner's 1991 analysis of $3,775 per mile along the transition and the distance to the Ohio/Indiana state line, this provides a reasonable estimate of the economic benefit of this project.

Benefits

- $3,775 per mile of Transition Line (Leuschner 1991).
- 35 miles of Transition Line based on the distance from the project site to the Ohio/Indiana line.

➢ $132,125 of total benefits

Costs

- $10,435 = Btk treatment (299 acres x 2 applications @ $17.45/acre/application)
- $2,087 = administrative costs (20.0% of treatment costs)

➢ $12,522 = total costs

Benefit/Cost Ratio

132,125 : 12,522 = 10:1

Table 1. Annual rate of spread based on the 10-moth line.

Year	Rate of spread	
	km/yr	mi/yr
2003	3.33	2.07
2004	-9.7	-6.03
2005	4.56	2.83
2006	1.05	0.65
Average	-0.45	-0.12

Source: STS Decision Support System
http://da.ento.vt.edu/spread/spread6.html

References:

Leuschner, William A. 1991. Gypsy Moth containment program economic assessment. Final Report. USDA Forest Service, Northeastern Area. 114 pp.

Leuschner, William A., John A. Young, and F. William Ravin. 1996 Potential benefits of slowing the Gypsy Moth's spread. Southern Journal of Applied Forestry 20:65-73.

Sharov, Alexi. A., et al. 2002. "Slow the Spread", a National Program to Contain the Gypsy Moth. Journal of Forestry, 100(5);30-35.